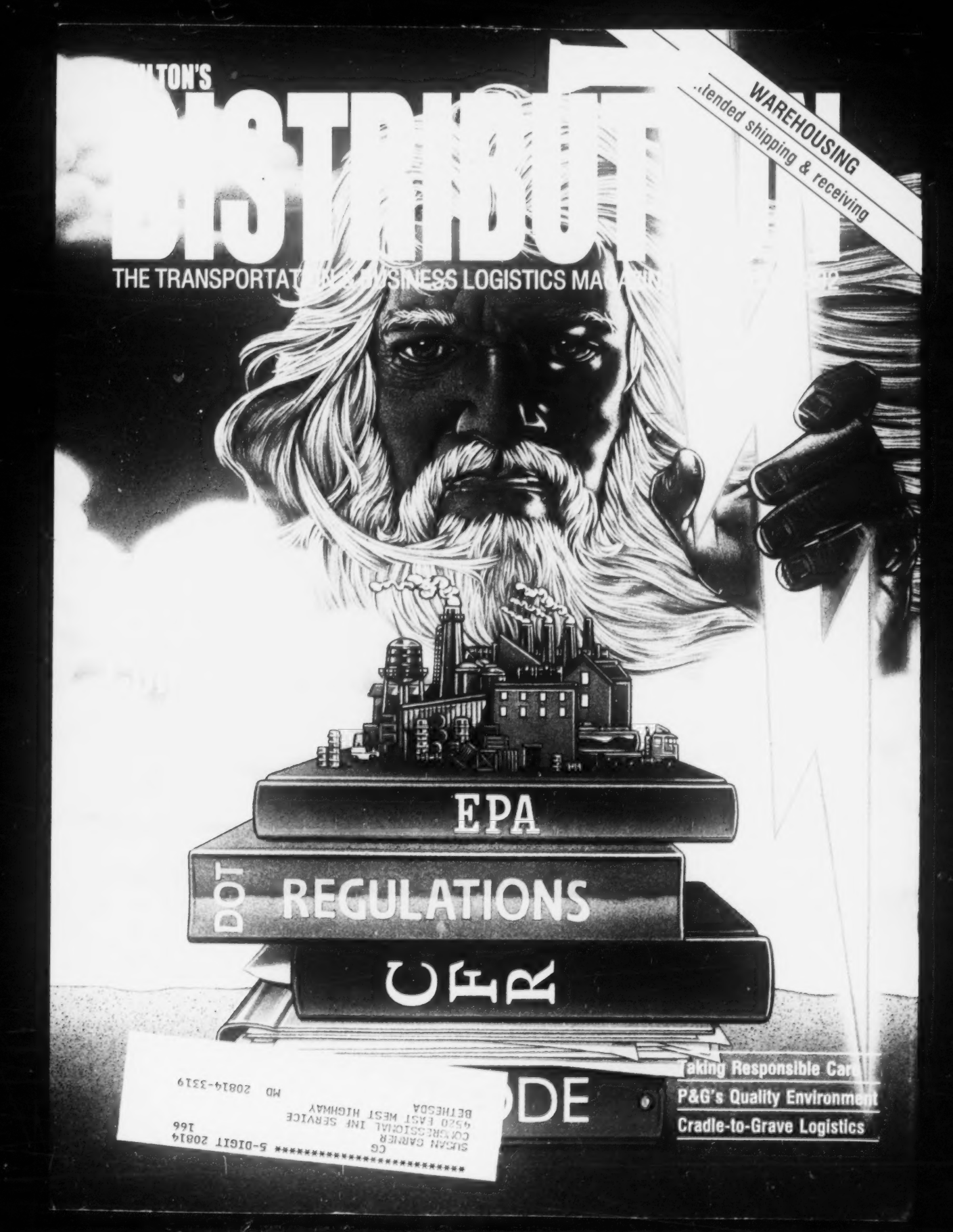
WAREHOUSING
EPA
DOT REGULATIONS
OSHA
Taking Responsible Car
P&G's Quality Environment
Cradle-to-Grave Logistics

JANUARY 1992

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THE TRANSPORTATION & BUSINESS LOGISTICS MAGAZINE

VOL. 91, NO. 1

COVER STORY

26 THE GOSPEL OF GREEN

Industry is being deluged with environmental rules directed at every stage of the supply chain. Compliance will cost hundreds of billions of dollars. Yet the public is demanding it; your customers are counting on it. Logistics managers are in a perfect position to manage these issues effectively for their companies. Are you ready to do the right thing?

FEATURES

32 THE QUEST FOR A QUALITY ENVIRONMENT

Procter & Gamble believes that maintaining leadership positions in its product categories depends to a great extent on its ability to make waste management a Quality issue.

38 CASEBOOK: AIRFREIGHT SERVICES

48 FOR LOGISTICS, A SUBTLE SHIFT IN ORGANIZATION

An Ohio State survey shows a slight trend toward centralized logistics organizations, as issues of cost and control win out over empowerment and getting close to customers.

52 RESPONSIBLE CARE GAINS RESPECT

Shippers, carriers, distributors and industry observers have come around to the conclusion that the chemical industry's all-encompassing environmental program is for real – and bound to get better.

56 INTEGRATION IN THE AIR

Last April, CNS set an industry milestone. While many believed it would never happen, international airlines and U.S. airfreight forwarders met face-to-face. Was it successful? And will it ever happen again?

63 WAREHOUSING: A REVIEW FOR MANAGEMENT

DEPARTMENTS

4 EDITORIAL

7 LTL QUALITY POLL

13 LOGISTICS TRENDS

16 TRANSPORTATION REPORT

22 GLOBAL LOGISTICS REPORT

24 UNDERCHARGE ALERT

59 LOGISTICS TOOLS

80 MANAGEMENT

Next Month: ***Service Industry Logistics***

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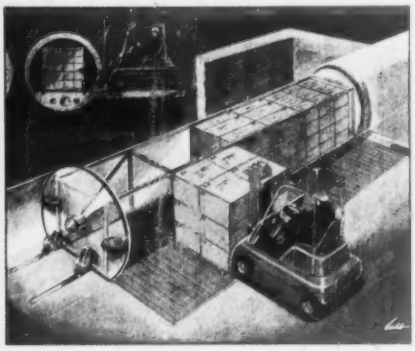
LOGISTICS TRENDS



Moving freight pneumatically

Will pneumatic pipelines one day ease interstate congestion?

It seems like an implausible concept, but then so was a national highway system at one time. The idea is an underground freight transportation system called Subtrans. The brainchild of a New Jersey company called TubeXpress, Subtrans is a proposed network of underground pneumatic tubes providing computer-controlled transit of cargo "capsules." The advantage of the system, proponents claim, is less traffic congestion, less freight damage, faster movement of goods, fewer environmental issues and greater security. The disadvantages? An inability to move out-sized freight—and, of course, the small matter of funding such a radical concept.

William Vandersteel, a TubeXpress executive, says the concept is sound; he points out that the U.S. oil pipeline network is the nation's largest transportation system, measured in ton-miles. Making the leap to a *solid* freight pipeline presents a major challenge, however. The volume per freight capsule is about one-tenth of a 40-foot trailer. But like a JIT disciple, Vandersteel stresses that Subtrans would provide for fewer, more frequent shipments. He envisions Subtrans running in the underground ducts beneath the center divider of interstate highways, with branch lines connected to the main system, and even individual branches for exclusive business use. Subtrans would use concrete pipes, 7 feet in diameter, with rail tracks embedded in a flat concrete floor. Each capsule would have 300 cu. ft. of capacity (about 8 tons) and move at an average speed of 65 mph.

"When the interstate highway system was proposed in the mid-1950s, the huge investment was readily justified in terms of the impact it would have on the nation's economy," Vandersteel says. "A nationwide Subtrans system would require an investment that is less, but comparable, to the interstate highway system, but not much more than is necessary to expand the existing system to accommodate the traffic growth which Subtrans could absorb."

Subtrans would be costly to build, but Vandersteel says low maintenance and energy costs, over time, make it more cost-efficient than either rail or truck. He seeks a federal commitment to study the economics of a full-scale system. "That the technology works is not a question," he says, pointing to Russian and Japanese versions of the concept. "It's only a matter of time before it develops (here)."

Needed: a big sell

New index shows intermodal must do better at selling itself

Intermodal's overall performance rating versus motor carrier service has slipped ever so slightly, yet more shippers are trying intermodal—and current users continue to divert traffic from truck to intermodal service. Further gains appear to go unrealized because intermodal's upbeat message is not being communicated to shippers.

These are the main themes of the 1991 Intermodal Index, the second installment of a five-year market research effort being sponsored by the National Industrial Transportation League and the Intermodal Association of North America. Conducted by consultants Temple, Barker & Sloane, the Index surveys more than 500 shippers annually to determine their perceptions of intermodal versus trucking service.

In overall performance ratings, truckers actually widened the gap between the two last year. Yet six percent more shippers used intermodal in 1991 than in 1990, and 34 percent said they had shifted some traffic to intermodal from trucks in the past year. Still, non-users perceive that truck service has improved far more than intermodal has, and the intermodal industry apparently isn't doing enough to combat that perception. Shippers were asked how often they were called on by carriers not presently serving their firm. Thirty-six percent said they'd been visited by a trucking rep in the past week; only 7 percent were called on by an intermodal salesperson. Likewise, 32 percent said they'd never been called on by an intermodal rep, versus only 4 percent who said they'd never been called on by a trucker they do not currently use.

FOR LOGISTICS, A SUBTLE SHIFT IN ORGANIZATION

An Ohio State survey shows a slight trend toward centralized logistics organizations, as issues of cost and control win out over empowerment and getting close to customers.

By the Logistics Research Group, Ohio State University

Ohio State University's 1991 Survey of Career Patterns in Logistics included a special section focusing on factors influencing the centralization or decentralization of the logistics function within the firm. Many firms have made organizational changes aimed at increasing or decreasing the degree of centralized planning and control of logistics. Executives were asked several questions to elicit the most important factors driving firms' organization strategies.

The factors driving decentralization of logistics functions had two major orientations: Meeting customer requirements and driving authority down to lower management levels *(Figure 1, right)*. However, the range of responses appeared almost evenly divided among the major categories. Customer-focused strategies accounted for 44 percent of the responses. Specific factors identified included the need to quickly respond to customer demands, segmented handling of a frequently differentiated customer base, getting closer to the customers to better understand their operations, and improving overall customer service. Factors affecting local decision-making authority appeared in 35 percent of the responses. The factor of decentralized decision-making authority occurred in the forms of autonomous business units, the move toward local decision making to increase responsiveness, exploiting technology to permit decentralized management access, and empowering the workforce to make decisions or have greater input to the decision-making process.

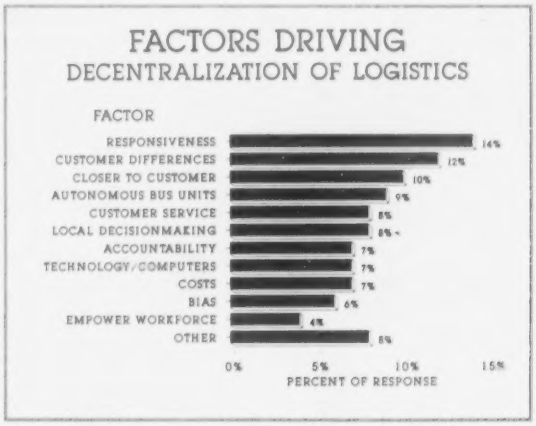


Figure 1—Empowerment and responsiveness are key themes for advocates of decentralization.

The primary factors driving centralization of the logistics function centered on cost, management control and resource availability *(Figure 2, p. 50)*. Cost control, negotiation leverage, economies of scale, and computers/technology accounted for 50 percent of the responses. The executives identified centralization as a means to lower operating costs while maintaining or improving productivity. A centralized logistics operation would enable greater control over costs through increased leverage in negotiations, better economies of scale, and less duplication of existing or developing computer data bases and technological improvements. Thirty-two percent of the executives cited management control as a factor driving centralization in their firms. The responses indicated a need for centralized strategic planning, coordination of management action and execution, overall focus on customer service, and a single point of contact for strategic alliances and third-party relationships.

Several executives also identified the lack of personnel, equipment and other resources as major forces arguing for centralization of logistics functions.

Six percent said resource limitations were driving centralization, and a similar number mentioned corporate downsizing. Limited expertise and availability of equipment precluded delegation of decision-making authority. Downsizing and consolidation to streamline overhead would prevent duplication of functions between central staffs and decentralized operations.

continued

Most respondents agree that their firm has increased the centralization of the logistics function over the last five years, although a healthy minority disagree *(Figure 3)*. Attitudes about the consequences of decentralization/centralization are also diverse. As evidenced here, considerable disagreement exists over whether decentralization enables the firm to "get closer" to the customer *(Figure 4)*. Similarly, executives split on the proposition that decentralized decision making results in more direct managerial accountability *(Figure 5, p. 51)*.

Executives were asked to indicate whether specific logistics functions became more or less centralized during the period from 1985 to 1991, and to project whether the functions would become more or less centralized during the period from 1992 to 1995. During the period from 1985 to 1991, 20 to 50 percent of the firms reported increases in centralization, while five to 15 percent of the firms were moving to decentralize these functions *(Figure 6)*. The same basic pattern emerges in the projections for 1992 to 1995, except that a significant number of executives indicate that they will decentralize their Customer Service and MIS functions *(Figure 7)*.

The results of the 1991 Survey of Career Patterns in Logistics lead to several conclusions:

1. Logistics career patterns continue to remain stable. The survey demonstrates a large number of experienced logistics professionals have cultivated successful careers in the discipline. Executive salary levels may have begun an upward climb after having leveled off during the past several years.

2. A continued broadening of the logistics function of the firm and the responsibilities of the chief logistics executive remains an ongoing trend. "Procurement" retained its relative importance ranking behind warehousing, traffic management and inventory control in terms of time allocation. The chief logistics executive also reported a high level of direct or advisory involvement in packaging, product planning and sales forecasting.

3. The majority of executives surveyed have experienced organizational trends aimed at increasing or decreasing the degree to which the planning and control of logistics functions is centralized in the firm. These trends appear to be focused on improving customer support, reducing costs, increasing local decision making authority and ensuring management control. While the survey did not indicate a strong movement in either direction, the responses suggest that a wide variety of forces guide a firm's organizational strategy. ■

The Logistics Research Group at The Ohio State University consists of Dr. James M. Masters, Assistant Professor of Logistics Management; Dr. Bernard J. LaLonde, Mason Professor of Transportation and Logistics, and Capt. Terrance L. Pohlen, USAF, Research Associate.

Figure 2—Logistics executives say centralization helps lower costs while improving productivity.

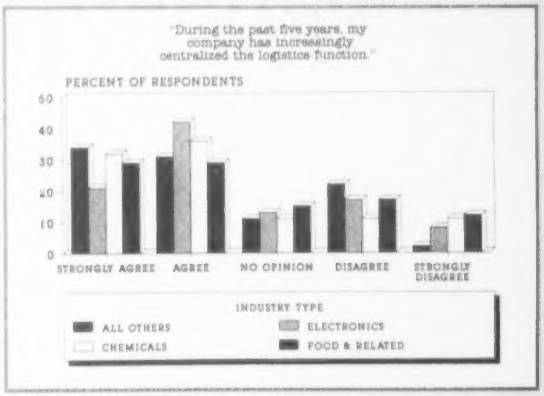


Figure 3—Logistics is increasingly centralized, though a healthy minority resists the trend.

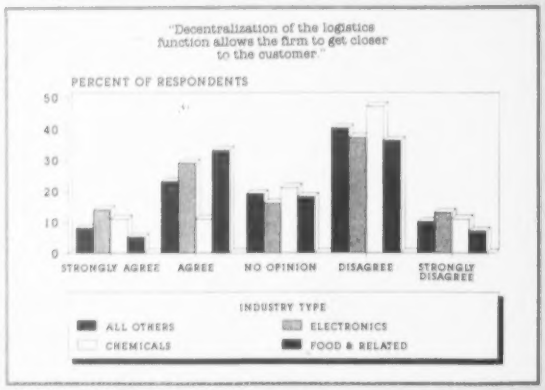


Figure 4—Does a decentralized approach to logistics really help firms get closer to customers?

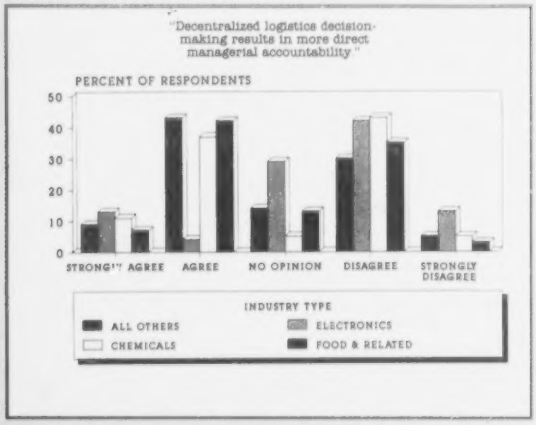


Figure 5—Executives also remain unconvinced that a decentralized structure increases accountability.

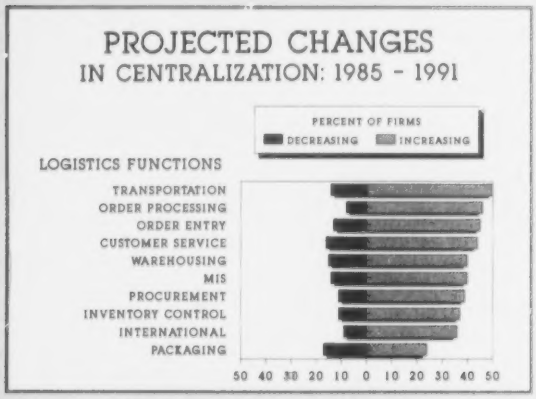


Figure 6—In the past five years, firms have moved to centralize almost every logistics function.

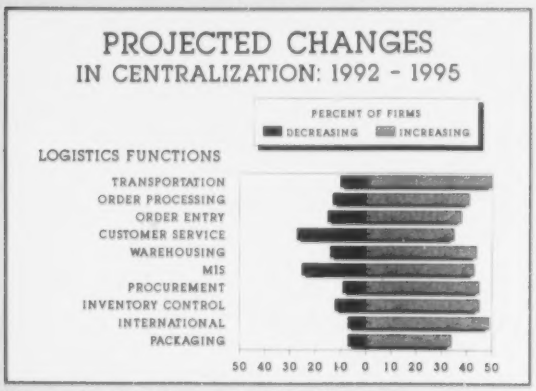


Figure 7—Is a change in the offing? Many firms say they will decentralize customer service and MIS.

CENTRALIZED MIS MAKES SENSE FOR NYNEX

For a rapidly growing company, centralizing logistics and management information systems often represents the best way to handle higher volumes of business with the fewest assets. That certainly has been the experience of Nynex Business Centers, which provides personal computer equipment and services to Fortune 1000 companies.

Nynex has 77 business centers in 30 major U.S. cities, some of which were acquired from IBM in 1986. At that time, Nynex was using a Wang VS 100 to support the inventory, accounting and logistics needs of 21 business centers in the Northeast; the IBM facilities, meanwhile, ran off of a System 38 that interfaced with IBM's distribution and accounts receivable systems and monitored the cash registers in the stores. While the Wang met Nynex's needs at the time, it was clear it could not handle the volume of business Nynex expected after the acquisition.

So Nynex went shopping for an integrated package that would consolidate the two systems. At the top of the shopping list was software, and Nynex chose the DCS/Logistics® system from Andersen Consulting. "DCS/Logistics was one of the few software packages that had all of the functionality we were looking for, plus an integrated accounts receivable system, which was a real bonus," says Les Levy, director of application development for Nynex Business Centers.

For the first six months the Wang and DCS/Logistics systems ran simultaneously. By mid-1987 Nynex had eliminated the Wang system, running DCS/Logistics on an IBM 3090 computer. An immediate benefit: tighter inventory control. Before DCS/Logistics was implemented, Nynex counted on the business centers to be the fulfillment arm of the company. Product would be transferred to the business centers, and customer orders would be shipped from those locations. But as Nynex grew and orders became larger, this type of decentralized inventory control became unworkable. Since each branch was a profit center, people in the field were reluctant to move inventory between centers because they might not have it when an order came in—so inventories were higher than necessary.

Now, 75 percent of Nynex's orders are entered online though a local area network at the business centers. With inventory and information centralized, Nynex has substantially improved customer service levels. Inventory levels have been reduced, and fewer inter-branch transfers helped Nynex double its volume without increasing freight costs. Marketing has benefited also; it now has a clear picture of order status and product availability.

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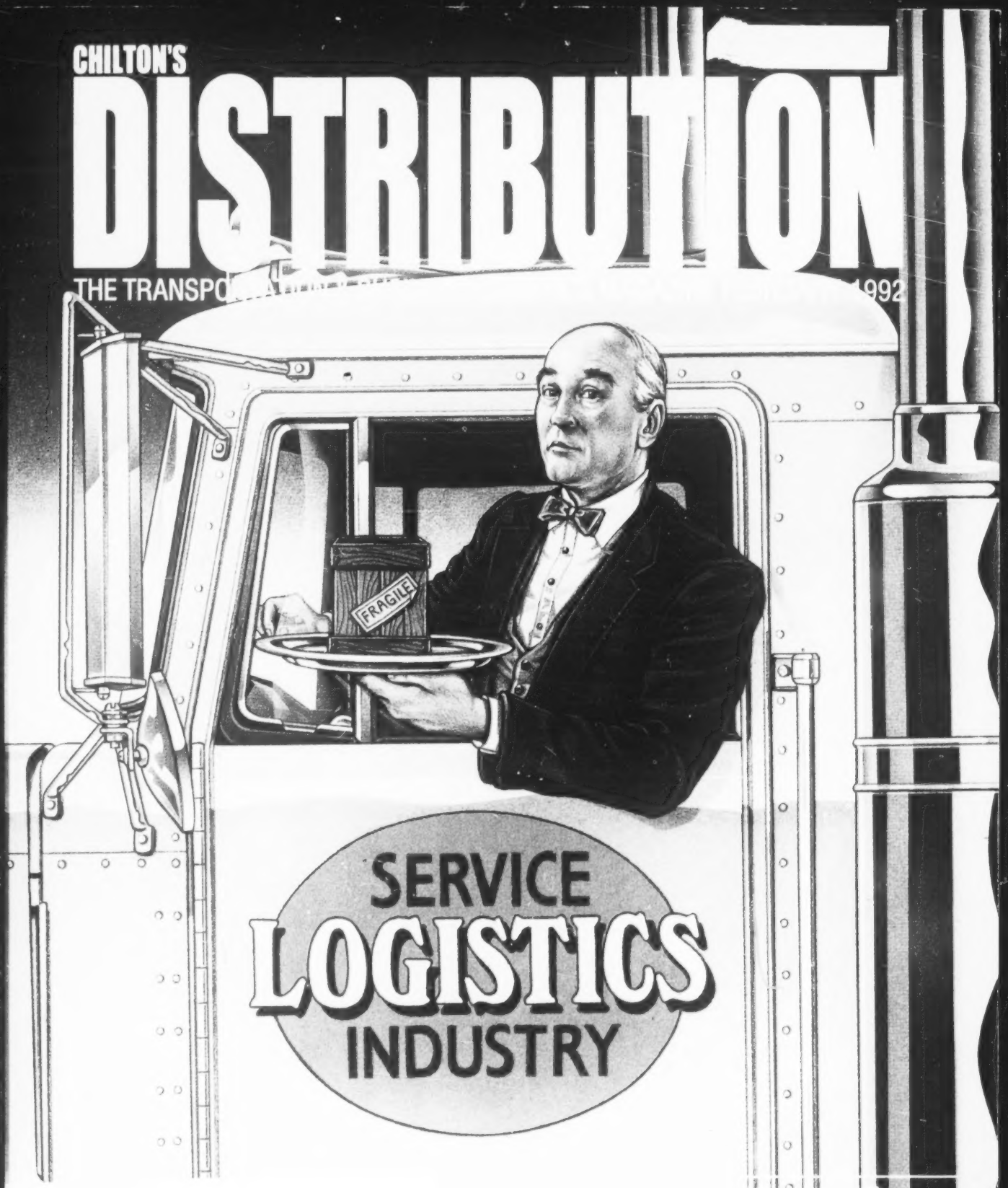

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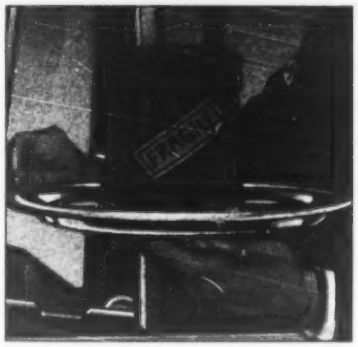
VOL. 91, NO. 2

COVER STORY

26 SERVICE-DRIVEN LOGISTICS

Three of every four existing jobs, and nine of every 10 new jobs, are in the service sector—an entirely new set of opportunities for logistics career advancement. But are the skills and strategies used in manufacturing logistics transferrable to the service sector? And are there logistics practices in the service sector that could be applied in manufacturing?



FEATURES

34 CASEBOOK: TRUCKLOAD SOLUTIONS

38 AT JOHNSON & JOHNSON, QUALITY IS A PICNIC

It is for J&J's top transportation vendors, anyway. But excelling in J&J's hard-nosed, back-to-basics Quality process is anything but fun and games.

44 ADDING SPACE—WITHOUT ADDING SPACE

This retail chain enlisted the help of its LTL carrier to eliminate "no-orders." Now, by matching purchase orders, they are able to dedicate space to actual shipments.

48 ANCHORS AWEIGH FOR THE HAMBURG RULES?

Tiny little Zambia finally put the Hamburg Rules on the map as a viable maritime liability regime. However, few U.S. shippers will benefit unless some countries we actually trade with sign on. Don't hold your breath.

55 WHAT CAN THE RIGHT SOFTWARE DO FOR YOU?

Eenie, meenie, minie, moe. Choosing logistics software that's vital to your company's success is not a game. Sandoz Nutrition analyzed all the possibilities before making its choice.

DEPARTMENTS

4 EDITORIAL

7 AIRFREIGHT QUALITY POLL

13 LOGISTICS TRENDS

14 UNDERCHARGE ALERT

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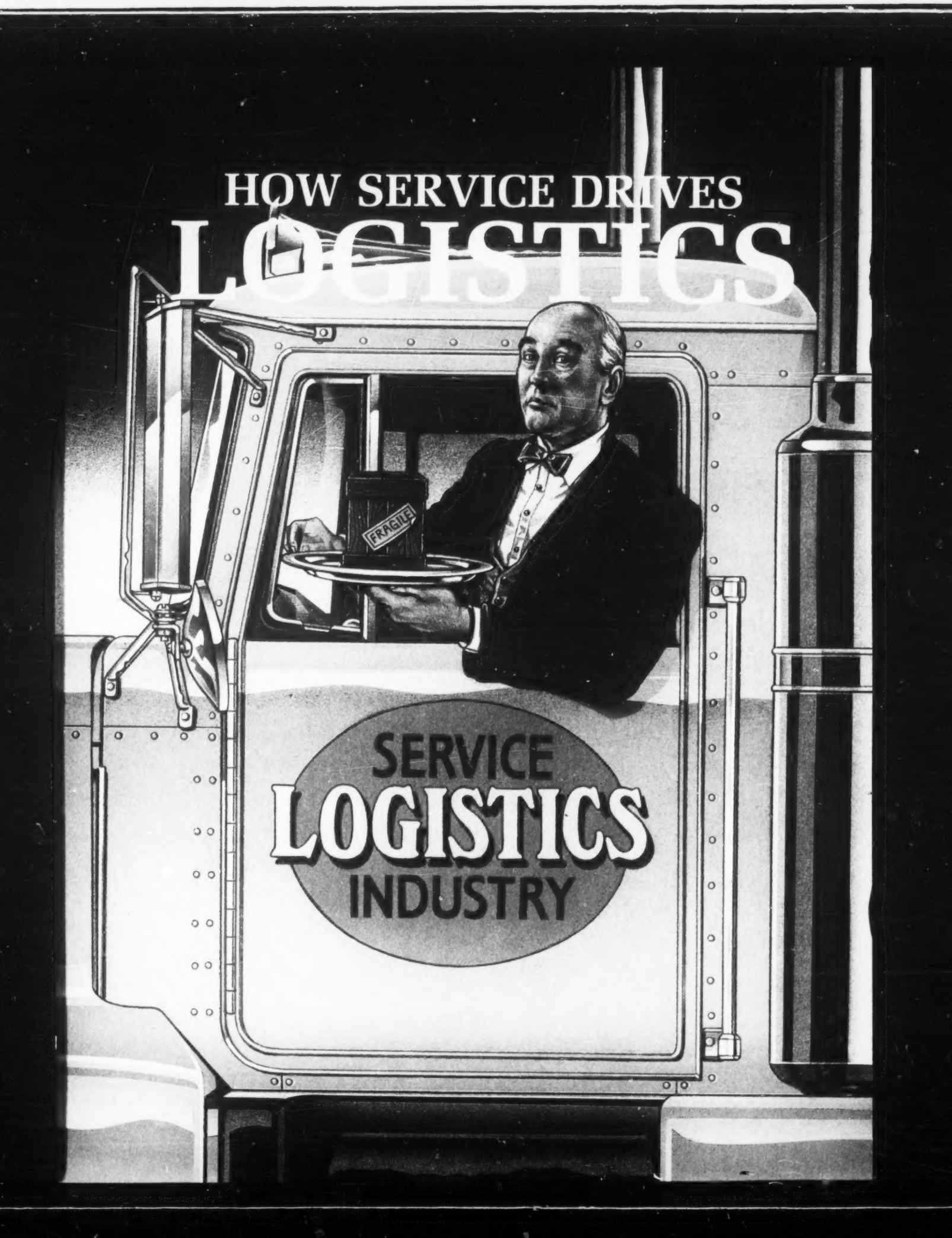
HOW SERVICE DRIVES
LOGISTICS
FRAGILE
SERVICE
LOGISTICS
INDUSTRY

The flight of capital, and jobs, from the manufacturing base of our economy into the service sector is accelerating. As a result, logistics must embrace a broader definition of its responsibilities, one that includes management of information and human resources as well as goods and materials.

By Jay Gordon, Executive Editor

Welcome to the dawning of the *Service Era*.

That's the name that Frank W. Davis Jr., professor of marketing & logistics at the University of Tennessee, gives to what he foresees as the next major period in business development. In the Service Era, companies will focus on delivering *benefits* to customers—not goods or services. Cost minimization and revenue maximization will no longer be viewed as the keys to profitability; *yield*, a measure of cost effectiveness, will take their place.

If you think that type of corporate mindset is still a long way off, consider that we've been laying the groundwork for it for the past 40 years. The U.S. has been rushing toward a service-based economy, to the point where today more than 75 percent of existing jobs, as well as nine of every 10 new jobs, are in the service sector.

Logistics managers grounded in the goods-producing segment of our economy view this dramatic shift in different ways. For a very few—those who either already have begun working for a service company, or are forward thinking enough to see the writing on the wall—the shift represents an entirely new set of opportunities for career advancement.

But the most widespread reaction has been apathy. At the annual conference of the Council of Logistics Management, where there was an entire track of sessions on logistics in the service industry, eyes glazed over when talk turned to the relationship between logistics in manufacturing and logistics in the service-producing arena. "The CLM," deadpans one eyewitness, "was several steps ahead of the membership on this."

The same skills used to manage stocks of widgets can be used to manage a different kind of inventory: say, hospital beds, or the capacity of a fiber optic cable.

Research Results

To help bring logisticians up to speed, CLM last year sponsored a research project to determine the state of logistics in the service industry. The research, conducted jointly by management consultants Arthur D. Little and the Center for Logistics Research at Penn State University, sought answers to a number of basic questions: What is the evolution of the logistics profession going to be and how does it fit into the service sector of the economy? Are the technologies, skills and thought processes used in manufacturing logistics transferrable to the service sector? Are there technologies and practices in the service sector that could be applied in manufacturing?

"One of the things we attempted to do in the research was to build bridges between activities in the service-related arena and the manufacturing-oriented arena," says Carl Evans, group director, logistics & transportation for the Keebler Co. and a member of the CLM's Research Evaluation Committee for the service industry logistics project. Until now, much of the job migration from manufacturing logistics to service industry logistics has taken place in areas closest to the profession: transportation, warehousing and consulting. "Box kickers don't usually get jobs in hotel chains," Evans says. "I think that some of that is marketing. The industry needs to market those opportunities when they become available."

But an even bigger problem may be that logistics managers in goods-producing industries don't recognize that their skills are transferrable to service sector jobs. The same skills, techniques and strategies used to manage inventory—whether it's widgets, watches or whatever—can be used to manage a different kind of inventory: say, hospital beds, or the capacity of a fiber optic cable. Similarly, the analysis necessary to determine the placement of a new distribution center is much the same as that used to pinpoint the best location for a new automated teller machine.

"For the individual practitioner," Evans says, "it requires a leap in logic to say, 'If that's the expanding sector of our economy, how do I translate my skills to that sector?' "

To help make that leap in logic, those who are familiar with the research say, a new, expanded definition of logistics is necessary. "To me, the key point that came out of the study is that we need to think of logistics more broadly than we do now," says William L. "Skip" Grenoble, administrative director of PSU's Center for Logistics

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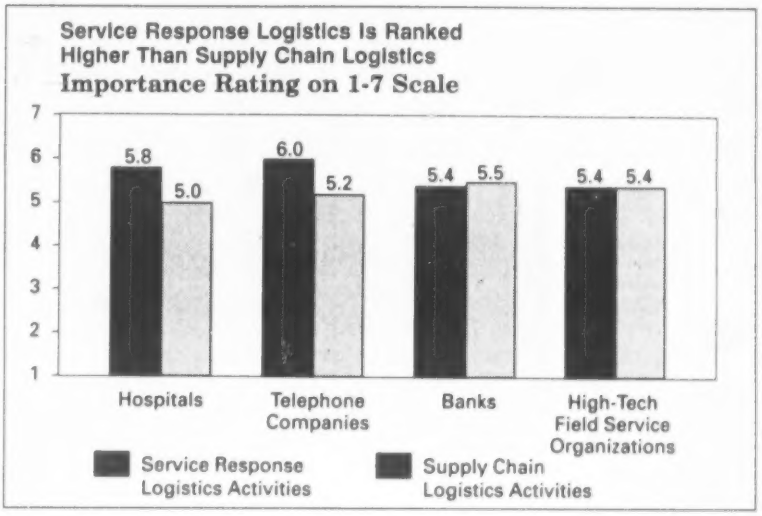
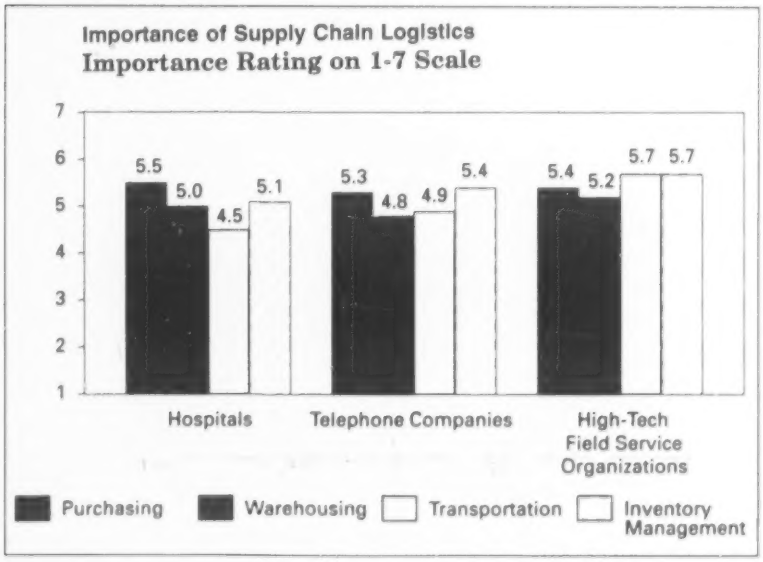


Research. For example, managing inventory—getting the right product to the right place at the right time—has become logistics' mantra in manufacturing industries. In the service industry, however, this narrow focus is replaced with a much wider mission: Getting the right goods *and* the right people *and* the right information to the right place at the right time. To make this easier to grasp, the research divides the definition of logistics into two parts. *Supply chain logistics* is the traditional process associated with the acquisition and distribution of goods. This is where logistics has been all along. *Service response logistics* is the coordinating of all nonmaterial activities necessary to the fulfillment of the service in a cost- and customer service-effective way.

The CLM research project examined the way these two components of logistics are addressed in four service industries: hospitals, banking, telecommunications and high-tech field service. While firms in these industries rarely question the importance of service response aspects of logistics, they are apt to take note of the supply chain functions only when they fail. Stockouts in the operating room or pharmacy of a hospital can have disastrous consequences. If the right wire or cable isn't available to the telephone repairman, it could prevent service from being restored.

Supply chain logistics is most important in high-tech field service, where inventory control and transportation of expensive parts is critical.



Most service industries emphasize service response logistics over traditional supply chain functions. These are usually noticed only if they fail.

Also, supply chain activities are rarely part of service firms' marketing mix. For example, banks don't flaunt their check processing prowess, yet they may lose customers if there are excessive errors or delays in this process. An exception here is high-tech field service, where parts availability is a crucial part of marketing success.

There is also a fairly dramatic difference between the cost structures of service-producing and goods-producing organizations. Many costs in the service sector are fixed; labor and capital account for 75 percent of operating costs in most businesses. This raises significantly the value of additional sales, because the marginal cost of providing the additional service is relatively low. For example, adding an additional passenger on a plane has a low marginal cost, but high marginal revenue.

This is the opposite of the way it works in manufacturing, where fixed costs typically account for less than 20 percent of operating costs. In manufacturing, the big bucks are spent on materials and inventories. The value of additional sales in this case is not as great, while the marginal costs of adding the volume can be much higher than for a service business. This is also why service firms must place such a strong emphasis on customer service. Because the incremental cost of servicing an additional customer is so low, the loss of revenue when a customer is lost is more keenly felt.

If there is one thing that sets service industry logistics apart from manufac-

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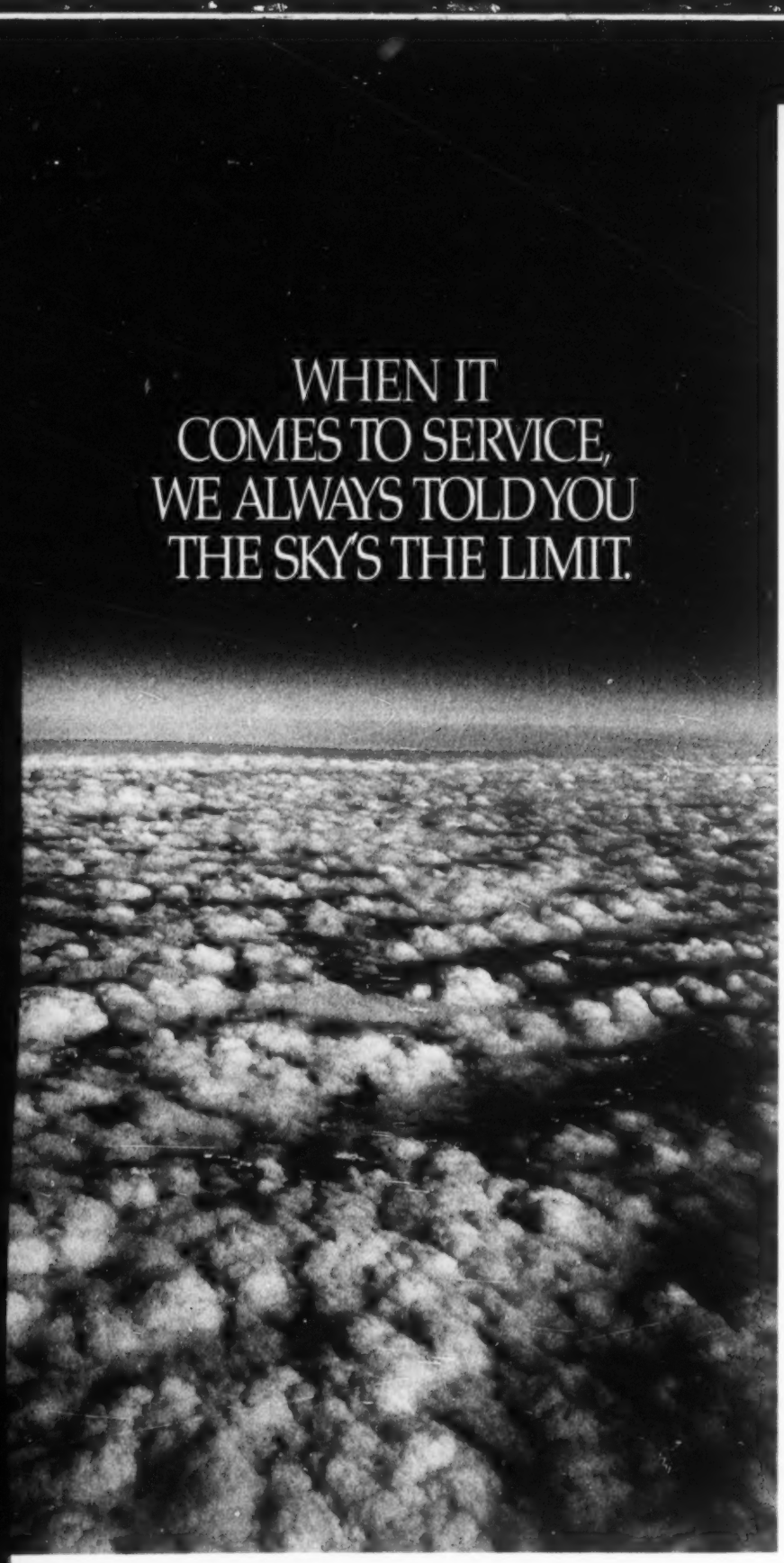


turing logistics, it's that production and consumption are simultaneous—and they almost always happen in front of the customer. This is rarely the case in manufacturing logistics, where a production breakdown can often be overcome by using safety stocks or expedited transportation.

Service response logistics focuses on three main areas:

• **Minimizing wait times.** These are similar to order cycle times in manufacturing logistics. They are a key factor in the quality of service.

• **Managing service capacity.** This is analogous to managing inventory in a goods-producing organization, though there are several important differences. For a manufacturer, inventory acts as a buffer, enabling it to provide product during periods of peak demand without extraordinary effort. Service firms don't have this luxury; if they don't have the capacity in place to meet the demand, they must either forego the business, let service levels slip or expend great effort and resources.

A second difference is that service firms often can change capacity only in fixed amounts. For example, an entire plane and crew must be scheduled between two cities. Manufacturers can usually produce a few more items without dramatically affecting overhead.

• **Providing delivery through distribution channels.** This correlates directly with the distribution channels in manufacturing industries. Like manufacturers, service firms are now experimenting with different distribution channels for their services. These new channels can increase the time that services are available (automated teller machines) or add to customer convenience (walk-in clinics).

The Opportunity is Great

Service industries, naturally, have always placed more emphasis on service response logistics than on supply chain logistics (see charts, p. 28). They have not expended a lot of effort managing supply chain costs

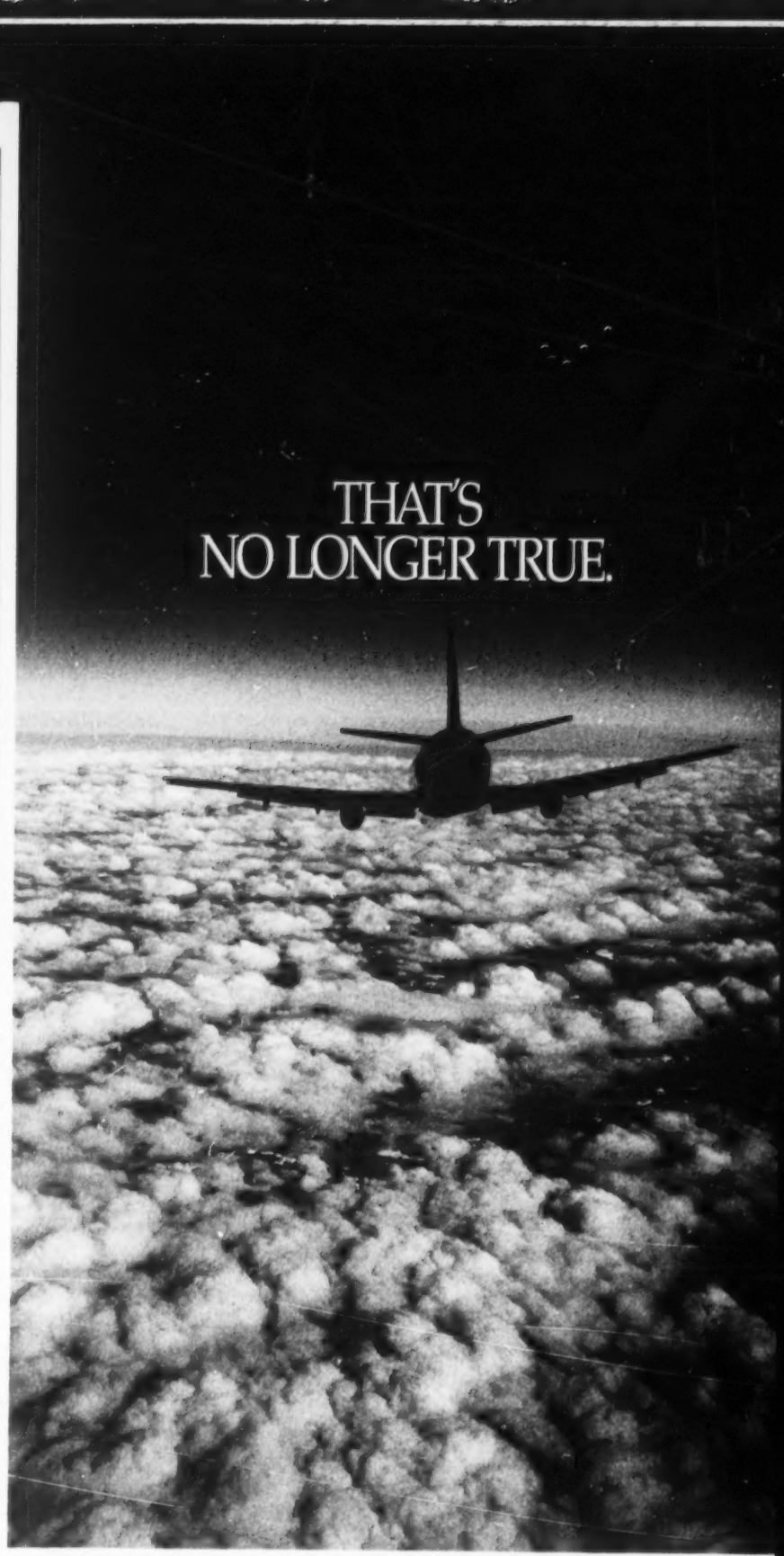
such as inventory, transportation and warehousing, mainly because they haven't had to. Until recently, many service industries have been highly regulated, so they could always pass on high supply chain costs to their customers. But now many of these industries are deregulated, and with deregulation comes increased competition—and closer scrutiny of costs. The CLM study places the value of the service economy at $2.9 trillion and points out that 75 percent of operating costs involve logistics processes—about $2 trillion. (This figure is much higher than a comparable percentage for goods-producing businesses because service industries rely so heavily on personnel to accomplish logistics tasks.) If logistics improvements in service industries were to match those in manufacturing over the past 10 years—about 10 percent—these firms could save as much as $200 billion.

This, then, is where traditional, manufacturing-based logistics professionals can make a real impact in a service business. Carl Evans points out that as recently as the mid-1960s, there were relatively few manufacturing companies with their own distribution or logistics departments. But as the function evolved and began contributing to profitability, it attained a higher level of credibility—and stature.

"There is a whole new world out there that we can bring some expertise to," Evans says. "The service industry offers some genuine career opportunities."

At the same time, service firms are typically much further along the service response logistics curve than are managers in goods-producing companies. "What we have to learn from service industries is how they do service response logistics," says Skip Grenoble, "because they do that very well." ■

Copies of the comprehensive report, "Logistics in Service Industries," are available from the Council of Logistics Management. Contact Christa Childs at (708) 574-0985.



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